

The background of the slide is a dark, abstract composition. On the right side, a series of bright, white light rays or beams emanate from a point, fanning out towards the left. These rays create a sense of depth and movement. The lower portion of the slide is a solid, dark gray horizontal band.

China

Why do RE prices continue to rise?

1. Increased demand for rare earths in widely used products
2. China undercut world prices in the 1990s and now produces 95% of the world's RE supply

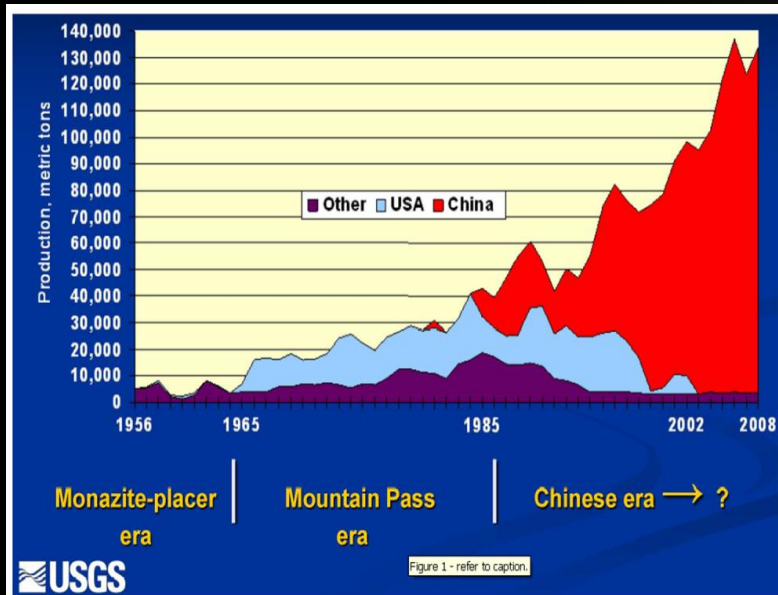
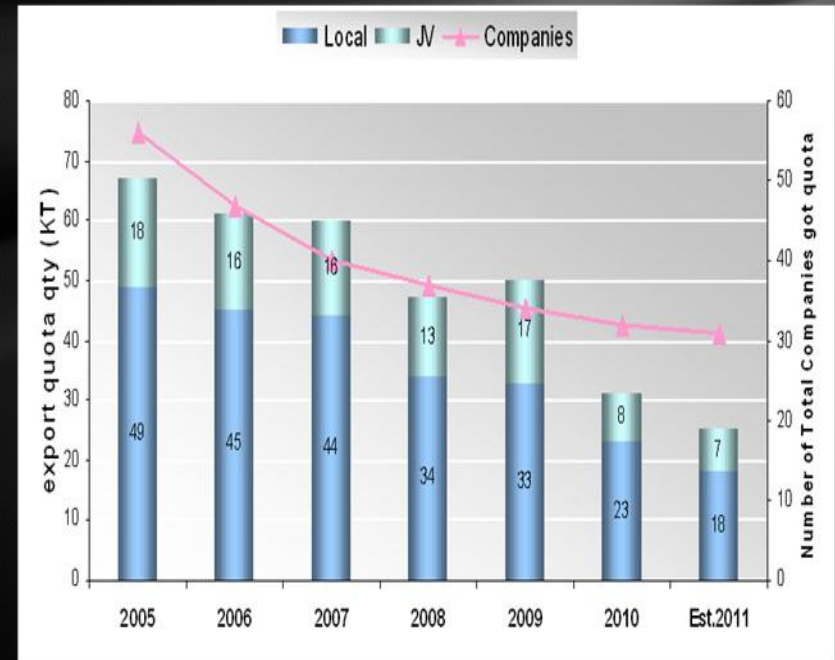


Figure 1. Global rare-earth-oxide production trends. The Mountain Pass deposit is in California, U.S.A. Graph from D.J. Cordier (U.S. Geological Survey, written commun., 2011) was updated from Haxel and others (2002, fig. 1).

3. China continues to reduce rare earth export quotas
4. Export duties (VAT) imposed to encourage “domestic” production of finished goods in China

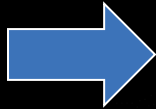


Rare Earth costs

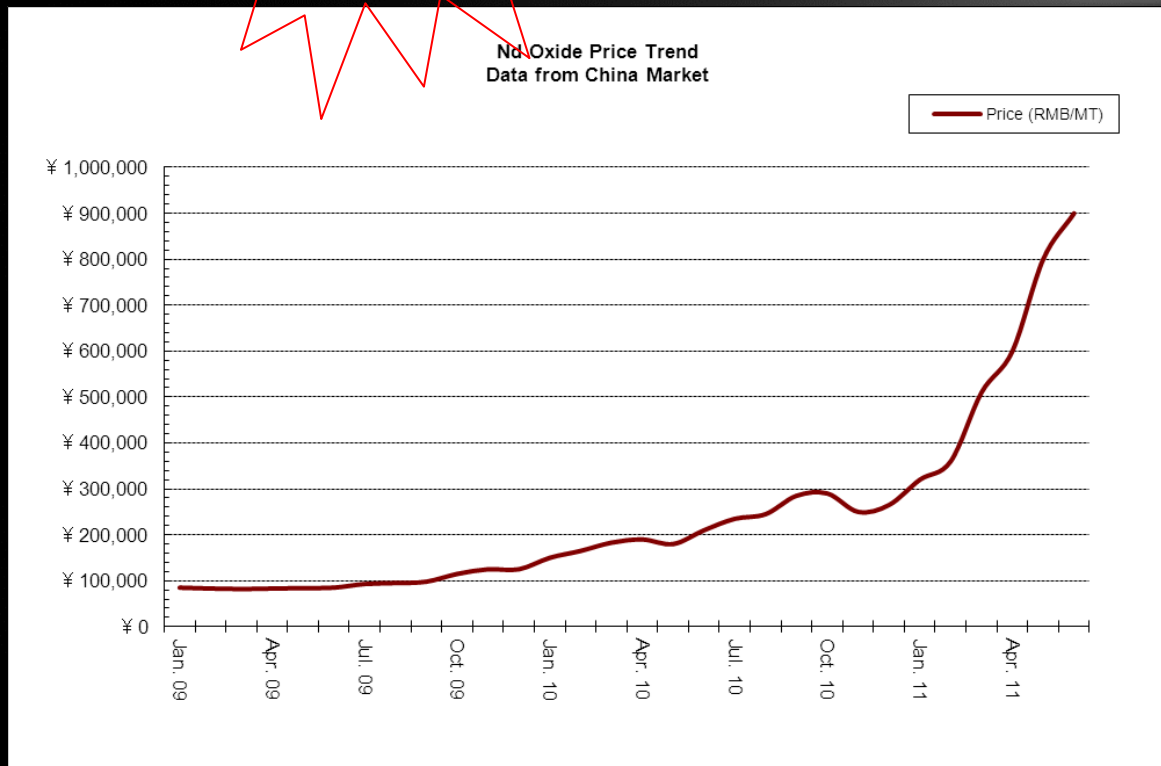
Neodymium, used in Reveal glass, has increased in cost **11X** since 2009!

RE prices are rapidly inflating costs of *phosphors* used in LFL & CFL products

Jan. 2009
85k RMB/MT



Today
930k RMB/MT



2012 DOE Compliance

Products Impacted...

4' T8 / T12

8' T12 / T8

8' T12 HO

U-Lamp / T12

4' T5

Prevent Low End T5

Updated Product Strategy...

F40 T12... 3000K to 6500K... 87 CRI...

F34 T12... 4100K only... 87 CRI...

F32 T8... 4100K... 87 CRI...

F32 T8 SP... 3000K to 6500K... SP+...

F32 T8 SP... SPX/HL/WM & 6500K NPI's...

F96 T12 WM... 3500K to 6500K... SPX...

Simplification in 8' T8...

F96 T12 HO WM... 3500K & 4100K... SPX...

T12... 3" & 6"... 3000K & 4100K... 87 CRI...

Current Offering 100% Compliant



I am Leading the GE Lighting Revolution!



Cost Impact for Fluorescent Electronic Ballasts

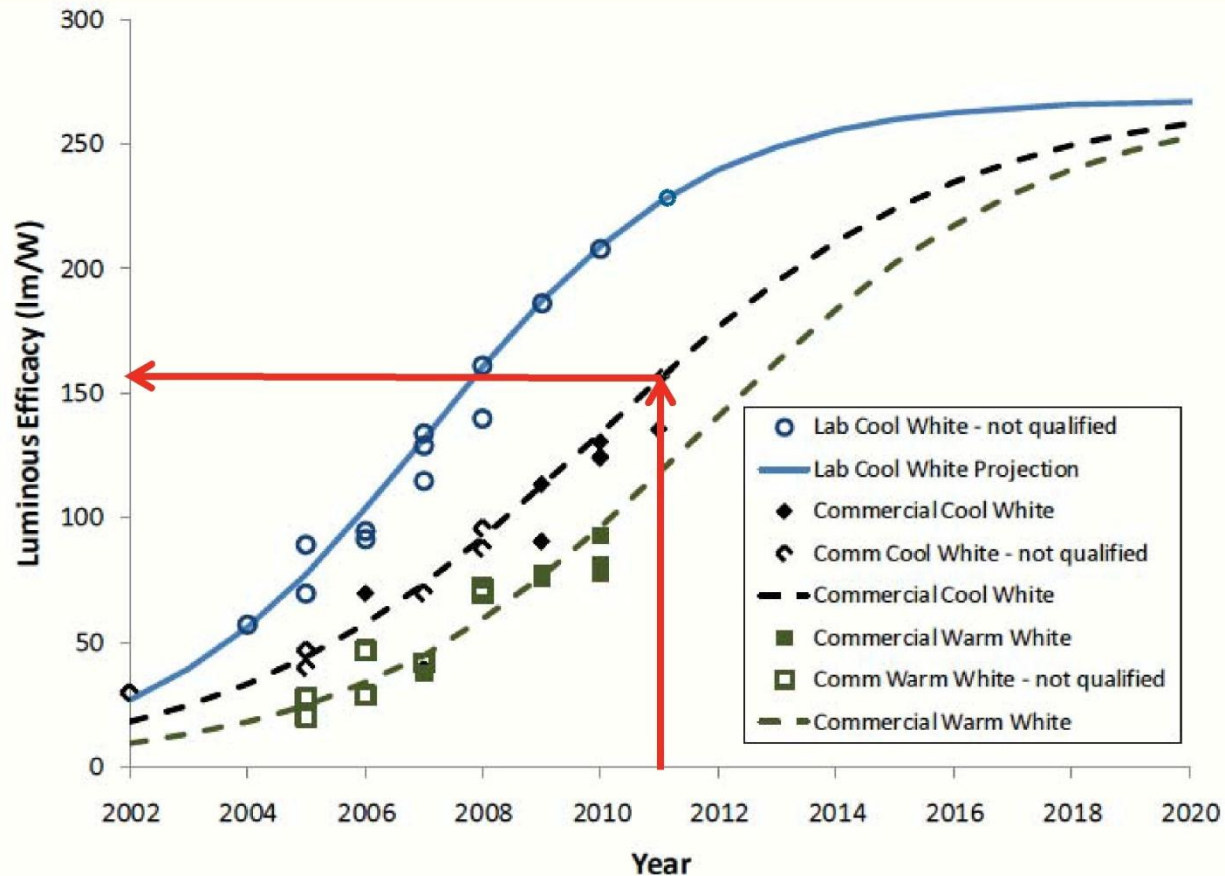
| | Jan/10-Jun/11 | | Ultramax 2N |
|----------------------|--------------------|-------------------------|-----------------|
| <u>ballast(\$)</u> | <u>Inflation %</u> | <u>Ballast Cost up%</u> | <u>Resistor</u> |
| 0.45% | 3.1% | 0.0% | |
| Capacitor | 15% | 8.5% | 1.3% |
| Semi-conductor 26.5% | 5.0% | 1.3% | |
| Petroleum/Pitch | 3% | 13% | 0.4% |
| Magnetics | 20.1% | 15% | 3.0% |
| PWB | 3% | 12% | 0.4% |
| Mechanical | 7.7% | 8.0% | 0.6% |
| Wire | 9.9% | 15% | 1.5% |
| Solder | 1.6% | 84% | 1.3% |
| All Other | 2.8% | 0.8% | 0% |
| Sub Total | | | 9.8% |
| Labor | 10% | 31% | 3.1% |
| Total | | | 12.9% |



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DOE Roadmap



US Department of Energy 2011 Multi-Year Plan for SSL, p.62



Color/Binning



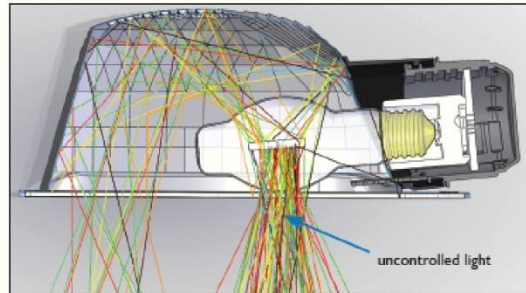
Loose Bin Specs can result in color variances across LEDs and fixtures

Cost of LED'S

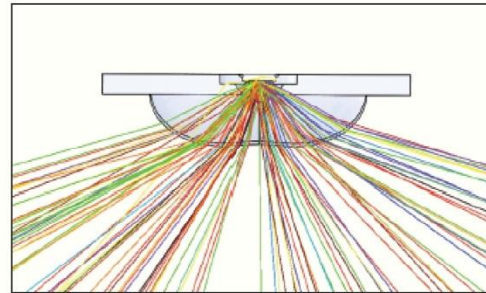
Since 2002 the cost to manufacture LED has dropped by 80%

Since 2009 the cost to produce LED has dropped by 40%

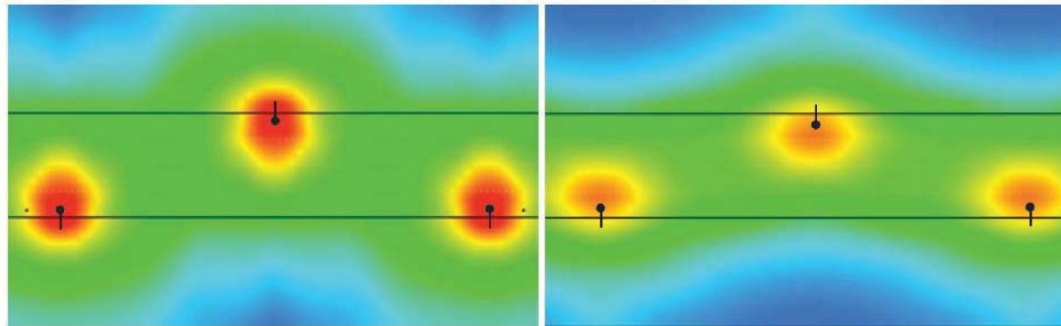
Traditional Lamp vs. LED Technology



HID lamp with reflector



LED with lens



The HPS luminaire (left) concentrates a lot of light below and behind the pole. The LED luminaire provides more uniform lighting on the roadway, while minimizing light trespass.

LED 4-w - compared to HAL 37-watt

It's all about application !

"Showed the lamp toElectric today.
Look at the attached pic - ours is in the middle
(dah) . . . Syl 37 w MR16 35 degree on either
side. They loved it. Kick butt lamp! "

Pat Pilens
GE Lighting

- 33-watts saved
- \$16 per year energy savings (@\$.11 and 4500 hours per year) per lamp
- Years of maintenance free operation



GE 4-watt LED

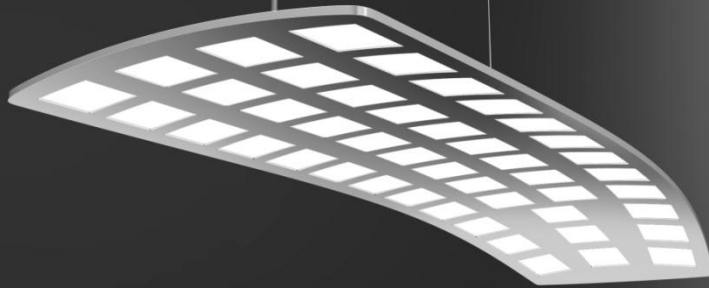
The Technology...Future



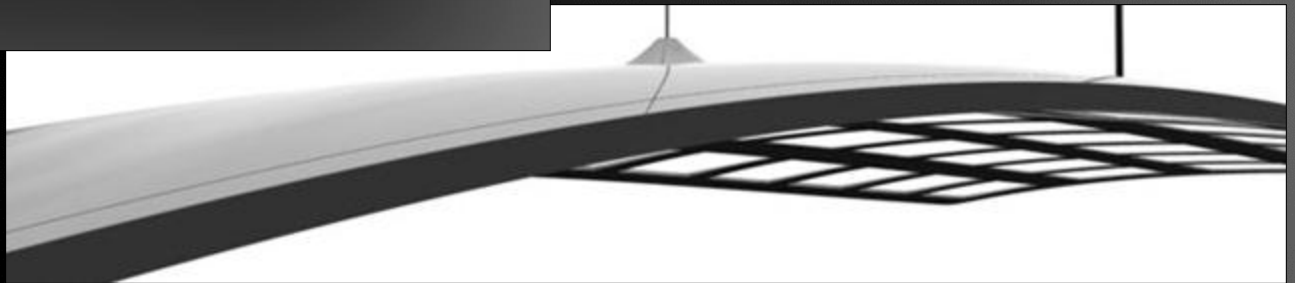
The Technology...Future



The Technology...Future



Kindred



The Technology...Future



Revel

